

DQA:

Date: 15/08/02



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed:

Date: 15/08/28

Work Order update only ☐

Work Order: <u>134972</u> Part No. <u>14148-3</u> NCR No. <u>15-5281</u>	DISPOSITION Rework ☐ Scrap ☒ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☒</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☒	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																		
Machining ☒	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																		
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																		
Large Fab ☐	Composite ☐	Supplier ☐																			
Date: <u>15-08-24</u>	Step #: <u>120</u>	QTY Effective: <u>①</u>		MRB (QS1042) Approval DAS 12 9-89 <u>15/08/24</u>																	
Description Work Order Deviation		Disposition		Completed By DAS 20 9-89 <u>15-08-24</u>																	
Width is 0.718. (dwg = 0.735) P.C. port moved in fig.		SCRAP. BASKET WAS SUBSTANTIATED BY TEST AND THERE ISN'T SUFFICIENT MARGIN TO ALLOW 0.718".		Lead hand / Supervisor Approval Verification <u>33</u> <u>33</u> <u>JA 15/08/24</u>																	
QC / QA Coordinator DAS Approval 9 9-89 <u>15-08-24</u>																					

Root Cause		FAULT CATEGORY			
Environment	☐	No Re-verification	☐	Pressure/Forced	☐
Design	☒	Operator	☐	Bending	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐
Material	☐	Use for Testing	☐	Cuffs	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER :	☐
Misidentified	☐	Past Due	☐		

Work Order ID 134972

Wednesday, July 22, 2015 4:18:20 PM

134972

Page 2

Item ID: D4148-3 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Stud Receiver, Lower
 Start Date: 7/22/15 Start Qty: 8.00 ***8*** Cust Item ID:
 Required Date: 7/22/15 Req'd Qty: 8.00 ***8*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC2- Inspect parts off machine FAI/FAIB	0.00				7	1		DAS 20 9-89 15-08-24
120									
QC	Memo	0.00							
Quality Control									
130	QC8- Inspect parts - second check	0.00				7	0		DAS 08 9-89
130									
QC	Memo	0.00							
Quality Control									
170	Identify as per dwg & Stock Location: <u>ST/03A</u>	0.00				7	27		27 9-89
170									
Packaging	Memo	0.00							
Packaging									

AUG 26 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

Work Order ID 134972

134972

Page 3

Wednesday, July 22, 2015 4:18:20 PM

Item ID: D4148-3 Accept *N900040100* Setup Start *NS1*
Revision ID: Stop *NS2*
Item Name: Stud Receiver, Lower
Start Date: 7/22/15 Start Qty: 8.00 *8* Cust Item ID:
Required Date: 7/22/15 Req'd Qty: 8.00 *8* Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	QC21- Final Inspection - Work Order Release	0.00							
180									
QC	Memo	0.00							
Quality Control									

_____ *ML5* _____ AUG 20 2015

SA 20150820

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Picklist Print

Wednesday, July 22, 2015 4:18:19 PM

Page 1

Work Order ID: 134972

134972

Parent Item: D4148-3

D4148-3

Parent Item Name: Stud Receiver, Lower

Start Date: 7/22/15

Required Date: 7/22/15

Start Qty: 8.00

Required Qty: 8.00

Comments: IPP REV:A NEW ISSUE 10-06-24 JLM VERIFIED BY:DD IPP
REV:B 11.03.02 AS PER DWG REV.D DD VERF:EC IPP REV:C
13.08.21 DWG REV.E / ECN 13-624 DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M303B1.000X03.000		Purchased			No	100	f	8.8333	0.48	3.84			
										**	3.667'	DAS 20 9-89	15-08-18
M303B1 000X03 000													
303 BAR 1" X 3'													

Location

Loc Qty

Loc Code

MAT008

8.8333

M132117

8.8333

1328861

3.667'

DQA: _____ Date: _____

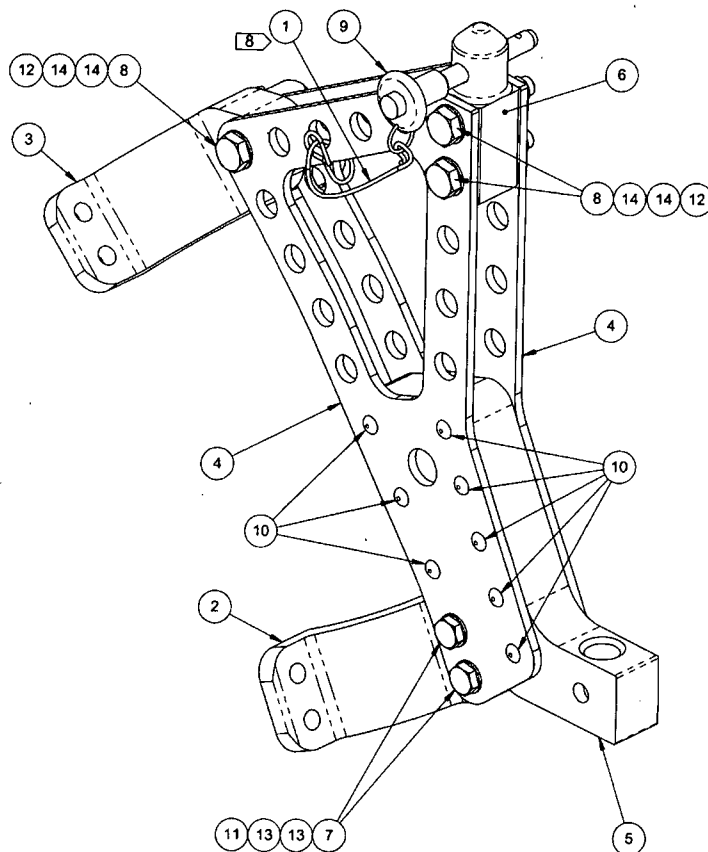


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval																																																										
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Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :			
Misidentified ☐	Past Due ☐																																																																



D4148-041 FWD X-TUBE LUG ASSY

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4148-041" PER DART QSI 044 6.1
- 7) WEIGHT: 3.66 lbs
- 8) ATTACH D2690-6 TO D4148-1 BY LOOPING AROUND A LIGHTENING HOLE FIRST AND THEN SECURE TO MS17984-C413

134972 MJS
15-07-23

ITEM	QTY -041	P/N	DESCRIPTION
	X	D4148-041	FWD X-TUBE LUG ASSY
1	1	D2690-6	LANYARD
2	1	D3910-1	X-TUBE LUG
3	1	D4091-1	MOUNTING LUG
4	2	D4148-1	FWD X-TUBE LUG PLATE
5	1	D4148-3	STUD RECEIVER LOWER
6	1	D4148-5	EYEBOLT STUD
7	2	AN3C12A	BOLT
8	3	AN4C13A	BOLT
9	1	MS17984-C413	PIN, QUICK RELEASE
10	8	MS20615-4M18	RIVET, SOLID, PAN-HEAD
11	2	MS21043C3	NUT, SELF-LOCKING
12	3	MS21043C4	NUT, SELF-LOCKING
13	4	NAS1149C0332R	WASHER
14	6	NAS1149C0432R	WASHER

RELEASED
2013-08-16
MP

E	B6-4 Ø0.286 HOLE ADDED FOR CARGO TUBE INSTALLATIONS.	AJS	13.07.22
D	HOLE DIA CHANGED TO 0.252" (D6-3); HOLE DIA CHANGED TO 0.250" (C8-5); REPLACED QTY(2) AN3C12A, MS21043C3 AND QTY(4) NAS1149C0332R WITH QTY(2) AN4C13A, MS21043C4 AND QTY(4) NAS1149C0432R (D3-1, C4-2)	SC	11.02.22
C	REDESIGNED D4148-1/-3 TO ADDRESS COMPATIBILITY ISSUES WITH D350-591 SHORT STEPS	MB	10.10.12
B	REPLACED QTY(3) MS20615-4M18 WITH QTY(2) EACH AN3C12A, MS21043-3 AND QTY(4) NAS1149C0332R WASHER (ZN D3-1, B7-2 & B4-2); MS20615-4M18 WAS MS20615-4M20 (ZN D3-1 & B7-3); Ø0.191 2 PL REPLACES Ø0.129 3 PL (ZN D6-3); Ø0.129 7 PL WAS 10 PL (ZN A7-3); Ø0.191 WAS 0.129 (ZN C8-5); REASON: SEE TR-D350-607-2 REV. B.	MB	10.07.05
A	NEW ISSUE	MB	10.06.18
REV.	DESCRIPTION	BY	DATE

DESIGN	MB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED		DRAWING NO.	REV. E
MFG. APPR.		D4148	SHEET 1 OF 5
APPROVED		TITLE	SCALE
DE APPR.		FWD X-TUBE LUG ASSY	NTS
DATE	13.07.22	COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

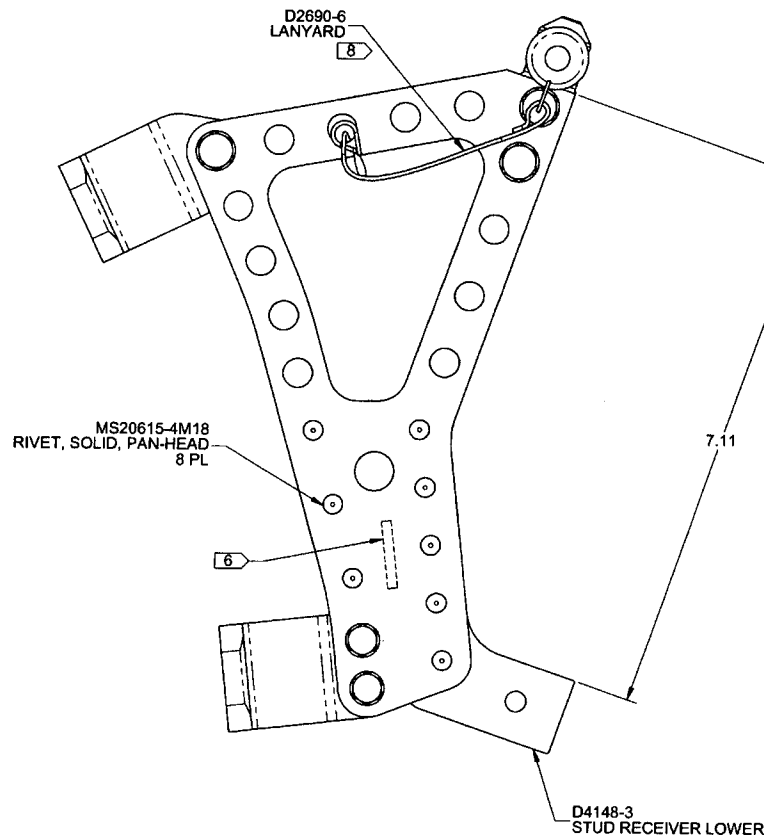
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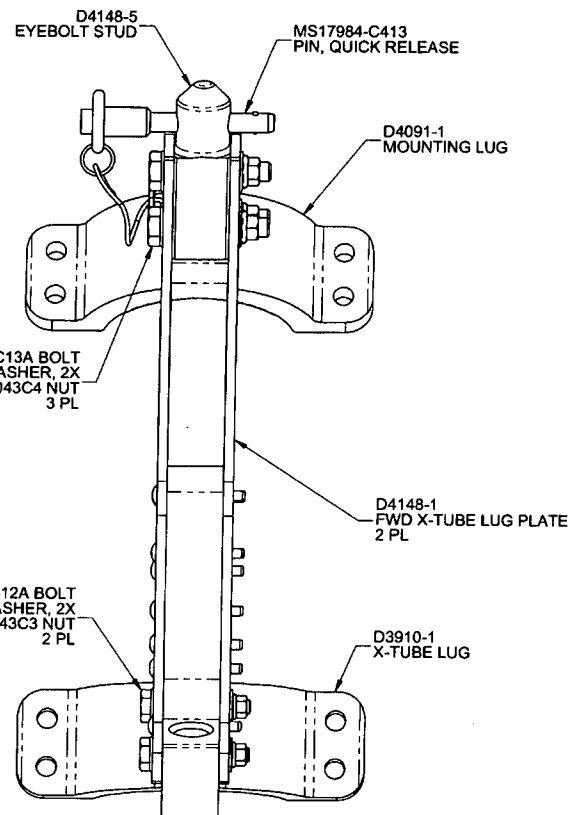
C

B

A



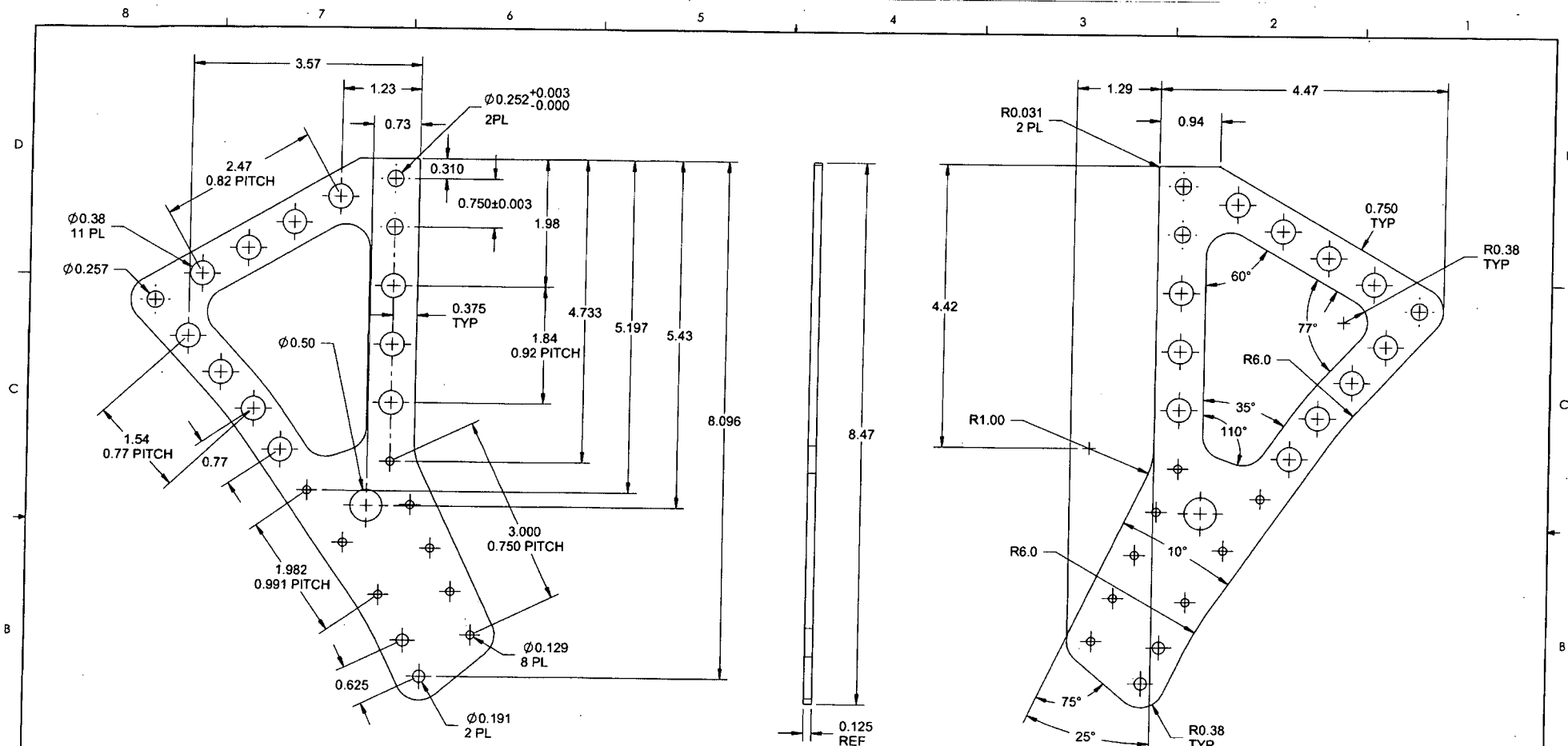
D4148-041 FWD X-TUBE LUG ASSY



RELEASED
2013-08-16
NP

DESIGN	MB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. E
MFG. APPR.	<i>[Signature]</i>	D4148	SHEET 2 OF 5
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	FWD X-TUBE LUG ASSY	NTS
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8 7 6 5 4 3 2 1



D4148-1 FWD X-TUBE LUG PLATE

RELEASED
2013-08-16

- NOTES:**
- 1) MATERIAL: 303/304/316 STAINLESS STEEL 0.125" SHEET ANNEALED 2B FINISH, PER MIL-S-5059 OR AMS 5513/5524 OR ASTM A240 OR ASME SA240 REF DART SPEC M304S11GA OR M303S11GA
 - 2) FINISH: NONE
 - 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK ALL SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 0.52 lbs

DESIGN	MB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED		DRAWING NO.	REV. E
MFG. APPR.		D4148	SHEET 3 OF 5
APPROVED		TITLE	SCALE
DE APPR.		FWD X-TUBE LUG ASSY	NTS
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8

7

6

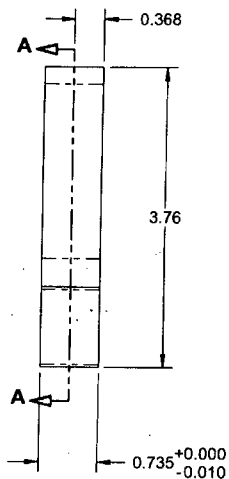
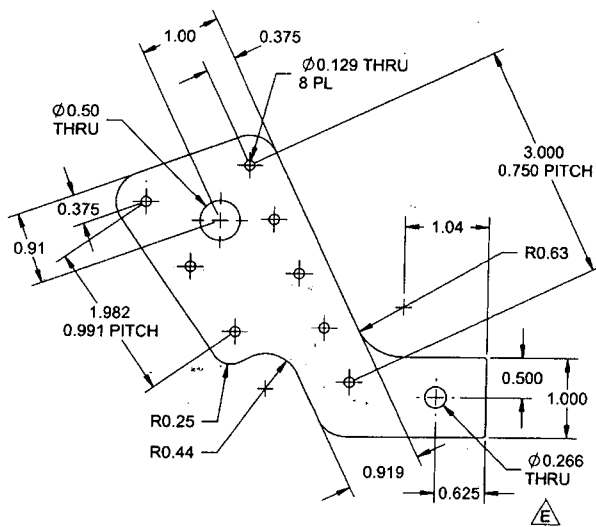
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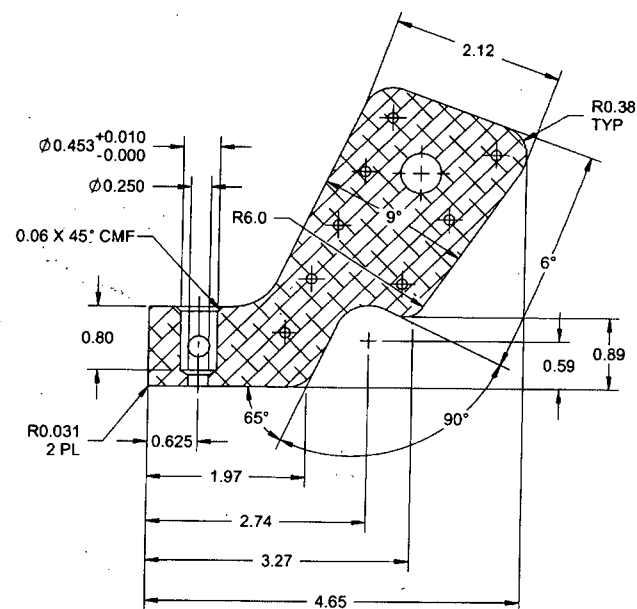
3

2

1



D4148-3 STUD RECEIVER LOWER



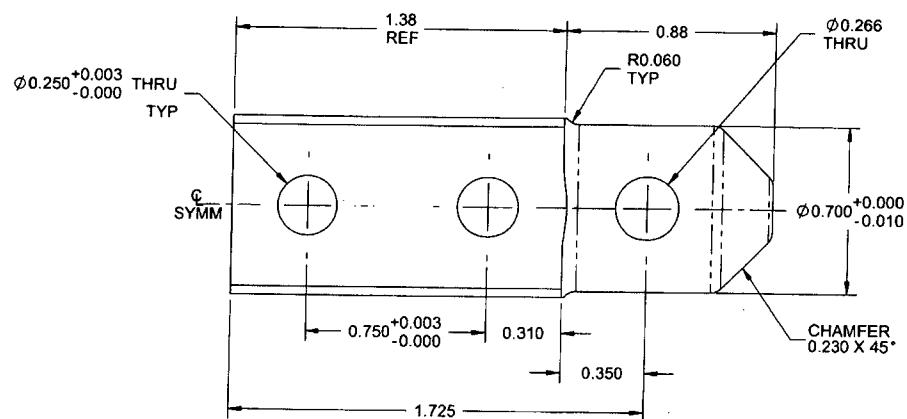
SECTION A-A

RELEASED
2013-08-16

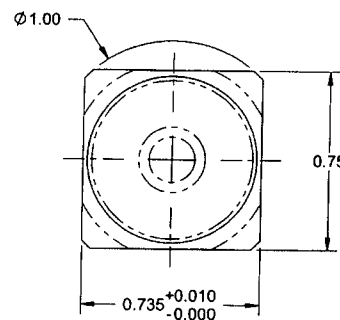
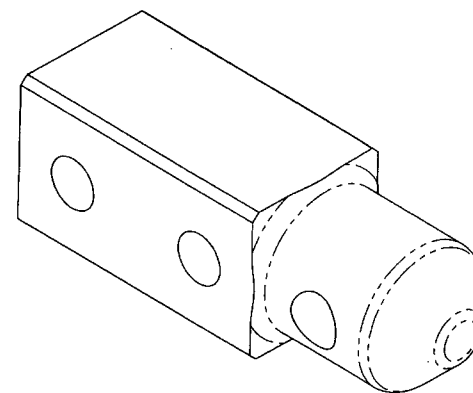
NOTES:

- 1) MATERIAL: 303/304/316 STAINLESS STEEL BAR PER ASTM A582 OR ASTM A276
REF DART SPEC M304B OR M303B
- 2) FINISH: NONE
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK ALL SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 1.51 lbs

DESIGN	MB	DART AEROSPACE LTD	
DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. E
MFG. APPR.		D4148	SHEET 4 OF 5
APPROVED		TITLE	SCALE
DE APPR.		FWD X-TUBE LUG ASSY	NTS
DATE	13.07.22	COPYRIGHT © 2010 BY DART AEROSPACE LTD	
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D4148-5 EYEBOLT STUD



NOTES:

- 1) MATERIAL: 303/304/316 STAINLESS STEEL BAR PER ASTM A582 OR ASTM A276
REF DART SPEC M304B OR M303B
- 2) FINISH: NONE
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK ALL SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.27 lbs

RELEASE
2013-08-16

DESIGN	MB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED		DRAWING NO.	REV. E
MFG. APPR.		D4148	SHEET 5 OF 5
APPROVED		TITLE	SCALE
DE APPR.		FWD X-TUBE LUG ASSY	NTS
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